

FACT SHEET FOR HYDROGEN SULFIDE

HEALTH EFFECTS STANDARDS

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Overview

In order to protect the health of Iowans living near concentrated animal feeding operations, the DNR is pursuing rulemaking to establish a health effects standard for airborne levels of hydrogen sulfide gas.

The standard is necessary to compare against monitored levels of hydrogen sulfide to determine the quality of air at homes, schools, churches and other public use areas that meet the legislatively defined criteria of “separated location.”

The health standard will be the “bar” used to compare against monitoring data. As required by the Legislature, should gas levels risk public health, the state is required to develop plans and programs to reduce emissions.

In April of 2003, the Department of Natural Resources proposed outdoor air quality standards for hydrogen sulfide and ammonia to apply to all outdoor air in Iowa, not just air near concentrated animal feeding operations. This effort was deemed too broad by the Legislature and nullified.

The DNR has modified the approach and is proposing new standards for hydrogen sulfide limited to separated locations near concentrated animal feeding operations.

The DNR is not proposing standards for ammonia or odor at this time. Based on current air sampling, it is difficult to distinguish ammonia from animal feeding operations versus other sources such as evaporated ammonia from soils. Due to scientific debate about odor impact on health, no odor standard is proposed at this time. The DNR is continuing to monitor both ammonia and odor to better understand rural air quality.

Proposed Hydrogen Sulfide Health Effects Standard:

The health effects standard for hydrogen sulfide gas is 15 ppb, daily maximum one-hour average, not to be exceeded more than seven times per year as measured at a separated location.

Question and Answers

1. Q: What is a Health Effects Standard?

The proposed Health Effects Standard will be the “bar” – or potential standard – used in reviewing hydrogen sulfide monitoring data of airborne levels at separated locations. It would allow the DNR to evaluate monitoring results from its study.

The standard is based on recommendations by the Iowa Concentrated Animal Feeding Operations Air Quality Study by the University of Iowa and Iowa State University of Science and Technology. The health effects value is based on commonly known and accepted health risk data.

2. Q. Does this standard restrict farm emissions?

No. The Health Effects Standard will be used as a “bar” to measure against monitoring data of hydrogen sulfide levels in the outdoor air at separated locations such as rural homes, churches, schools and other public areas. It will help describe the quality of the local air quality at separated locations. *It is not* an emission standard and does not require any action by animal feeding operations.

As required by the Legislature, should the health value be exceeded, then programs and plans to reduce emissions would be enacted to protect public health. By law this cannot occur until after December 1, 2004. Any proposed measures would be devised with technical advisory groups.

3. Q: Is the proposed standard either too strict or lenient?

Twenty-seven states have hydrogen sulfide health standards. The Iowa proposal is neither the most stringent or most lenient. The Iowa standard is the only standard that allows seven exceedances per year. This is done to allow for routine agricultural activities, such as manure application, that could impact monitor results.

Worker protection standards set by the Occupational Safety and Health Administration (OSHA) contains standards that are less stringent. Worker standards however are not a fair comparison. **OSHA and public health experts recommend against using less stringent worker standards as public health standards.** Workers voluntarily subject themselves to workplace exposure for compensation and are generally a healthy subset of the general population with exposure often limited to 8 hours daily and 40 hours per week. In contrast, public health standards are intended to protect *all* members of the public, including those most susceptible to poor air quality such as infants and children, the elderly, and those with existing health and medical conditions. **Therefore, public health standards are more protective than occupational standards.**

4. Q: Where are the standards applicable?

Only monitored hydrogen sulfide levels taken at separated locations near concentrated animal feeding operations will be compared to the Health Effects Standard. Some existing state monitors will be relocated to homes, churches, schools or other public facilities that meet the definition of separated locations. As required by the Legislature, the proposed standard does not impact industrial facilities or air near industrial facilities.

5. Q: Where are the monitors located?

Nine current or planned monitoring stations check airborne levels of hydrogen sulfide in Hamilton, Hardin, Harrison, Poweshiek, Sioux and Wright Counties, at separated locations that represent some of the largest concentrated animal feeding operations in Iowa. These include pork, beef, poultry and dairy production. Several sites are being changed to monitor air that meets the definition of separated locations as required by the Legislature.

6. Q: Where did the levels used for the standards come from?

The levels of the standards were recommended to the department in a report called the Iowa Concentrated Animal Feeding Operations Air Quality Study, completed by Iowa State University and the University of Iowa in February, 2002.

The levels were adopted directly from the University Study consensus recommendations for human exposure; 15 ppb for hydrogen sulfide, where the department has interpreted these concentrations as daily maximum one-hour averages.

For additional information, the University Study may be found at:

<http://www.public-health.uiowa.edu/ehsrc/CAFOstudy.htm>

7. Q: Will the state issue permits to control emissions?

At this time, no. If monitoring shows gas concentrations violate the proposed health standard and risk public health, then the Legislature has required that plans and programs to reduce emission be designed and implemented after December 1, 2004.

The purpose of the current monitoring study is to determine if Iowa's air quality at separated locations meets the proposed health standards and to see if future regulation is needed. In order to do so, a health risk standard for hydrogen sulfide must be adopted, which is the intent of the current rulemaking.